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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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03/11/2004

Yi-Hui Chang

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10/05/2007

LIU & LIU

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LOS ANGELES, CA 90071

EXAMINER

LAWSON, MATTHEW P

ART UNIT

PAPER NUMBER

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MAIL DATE

DELIVERY MODE

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/799,502

Applicant(s)

CHANG, YI-HUI

Examiner

Matthew P. Lawson

Art Unit

2871

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 July 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 27-30 and 32-52 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 27-30 and 32-52 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. Applicant's amendment filed 13 July has been received and entered. **Claims 27-30 and 31-52** are pending in this application.

Response to Arguments

2. Applicant's arguments with respect to the claims have been considered but are moot in view of the new grounds of rejection.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to

consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. **Claims 27-30, 32-37, 39-45 and 48-52** are rejected as being unpatentable over Harbers et al. (Harbers, previously cited), US PGPub. No. 2005/0073495 A1, in view of Kitamura, Japanese Laid-Open Patent Application No. 2004-047297 (previously cited).

6. Regarding claims 27, 39 and 37, Kitamura discloses a backlight device comprising:

- a. A point light source (LED light source 5);
- b. a light guide plate (8) comprising a first surface facing the point light source and a second surface emitting light passing through the light guide plate, wherein the first surface comprises a convex structure (light guide block 11), aligned with a point source, and having a recess (through hole 12) directly facing each point light source (Kitamura, Figs. 2,3).

7. Specifically, Kitamura discloses the convex structure to surround the LED light source (Kitamura, ¶ [0024]), and discloses that a plurality of LED components may be used (Kitamura, ¶ [0027]), thereby teaching a plurality of convex structures.

8. Kitamura fails to expressly disclose a two-dimensional array of point light sources and convex structures.

9. However, Harbers discloses a backlight device comprising a two dimensional array of LEDs (24) supported on a back plate (Harbers, Figs. 4, 5). Since Kitamura

teaches each convex structure to correspond to each LED (Kitamura, ¶ [0024, e.g.]), the combination of Kitamura and Harbers would also include a two-dimensional array of convex structures.

10. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use a two-dimensional array of LEDs, as taught by Harbers, in the device of Kitamura, in order to, for example, increase the contrast of a device using the backlight by driving the LEDs in groups (Harbers, ¶ [0030-0034]).

11. In response to applicant's argument concerning the interpretations of the terms "recess" and "facing", it is noted that during patent examination, pending claims must be given their "broadest reasonable interpretation consistent with the specification" (*Phillips v. AWH Corp.*, 415 F.3d 1303, 75 USPQ2d 1321 (Fed. Cir. 2005)), and, though the claim language must be read in light of the specification, it is improper to import claim limitations from the specification, i.e. "a particular embodiment appearing in the written description may not be read into a claim when the claim language is broader than the embodiment" (*Superguide Corp. v. DirecTV Enterprises, Inc.*, 358 F.3d 870, 875, 69 USPQ2d 1865, 1868 (Fed. Cir. 2004)). See MPEP §§2111 and 2111.01.

12. For example, in the instant case, the term "recess" is not interpreted to be expressly limited to a specific recess such as that labeled 242' in applicant's Fig. 5b. Evidence justifying this broad interpretation can be found in the additional limitation requiring the recess to be "arc-shaped" in applicant's claim 38.

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13. Note that where applicant acts as his or her own lexicographer to specifically define a term of a claim contrary to its ordinary meaning, the written description must clearly redefine the claim term and set forth the uncommon definition so as to put one reasonably skilled in the art on notice that the applicant intended to so redefine that claim term. *Process Control Corp. v. HydReclaim Corp.*, 190 F.3d 1350, 1357, 52 USPQ2d 1029, 1033 (Fed. Cir. 1999).

14. Regarding claims 28 and 29, claim 27 is unpatentable over the combination of Kitamura and Harbers as discussed above.

15. Kitamura fails to expressly disclose the convex structures to be distributed uniformly in both directions of the light guide plate.

16. However, the two-dimensional array of point light sources as disclosed by Harbers comprises light sources distributed uniformly in both directions of the light guide plate, and is also thereby distributed in a matrix (Harbers, Fig. 5, e.g.).

17. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to form the convex structures of Kitamura so as to be distributed uniformly in both directions of the light guide plate, and thereby distributed in a matrix, in the device as taught by the combination of Kitamura and Harbers, since Kitamura teaches a plurality of convex structures aligned with each LED, as discussed under claim 27 above.

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18. Regarding claim 30, claim 27 is unpatentable over the combination of Kitamura and Harbers as discussed above. Kitamura further discloses the first surface to comprise a planar surface from which the convex structures extend (Kitamura, Figs. 2, 3).

19. Regarding claims 32 and 33, claim 27 is unpatentable over the combination of Kitamura and Harbers as discussed above.

20. Kitamura fails to expressly teach a portion of the light source to be not entirely received within the corresponding recess of the convex structure, or at least a portion of each point light source to remain outside the corresponding recess.

21. However, it would have been obvious as a matter of design choice to one of ordinary skill in the art at the time of the invention to for a portion of the light source to be not entirely received within the corresponding recess of the convex structure, or at least a portion of each point light source to remain outside the corresponding recess, in the device as taught by the combination of Kitamura and Harbers, since it has been held that rearranging parts of an invention involves only routine skill in the art. *In re Japiske*, 86 USPQ 70.

22. Regarding claims 34 and 35, claim 27 is unpatentable over the combination of Kitamura and Harbers as discussed above.

23. Kitamura further teaches point light sources to be positioned relative to the convex structure such that light emitted from the point light source is substantially

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received through the convex structure, as well as having each point light source juxtaposed to the convex structure (Kitamura, Figs. 2, 3).

24. Regarding claim 39, claim 27 is unpatentable over the combination of Kitamura and Harbers as discussed above. Kitamura further discloses the convex structures to have a frustum shape (Kitamura, Figs. 1, 4) or truncated cone shape (i.e. circular configuration, Kitamura, ¶ [0027]).

25. Regarding claim 40, claim 27 is unpatentable over the combination of Kitamura and Harbers as discussed above.

26. Kitamura further discloses the convex structures to have a tapered shape, wherein the convex structure reduces in area towards the light source (Kitamura, Figs. 1-4).

27. Regarding claims 41 and 42, claim 40 is unpatentable over the combination of Kitamura and Harbers as discussed above. Kitamura further discloses the cross-section of the convex structure to be either a rectangular shape or a circular shape at a distal end or a proximal end thereof (Kitamura, Figs. 1, 4, ¶ [0027]).

28. Regarding claims 43 and 44, claims 40 and 42 are unpatentable over the combination of Kitamura and Harbers as discussed above.

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29. Kitamura further teaches point light sources to be positioned relative to the convex structure such that light emitted from the point light source is substantially received through the convex structure, as well as having each point light source juxtaposed to the convex structure (Kitamura, Figs. 2, 3).

30. Regarding claim 45, claim 27 is unpatentable over the combination of Kitamura and Harbers as discussed above.

31. Kitamura fails to expressly disclose a diffusion sheet.

32. However, Harbers discloses a diffusion sheet (28) disposed adjacent to a second surface of the backlight (Harbers, Fig. 2; ¶ [0018]).

33. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include a diffusion sheet as taught by Harbers in the backlight device as taught by the combination of Kitamura and Harbers, in order to increase the efficiency of the backlight, (Harbers, ¶ [0018]).

34. Regarding claim 48, claim 27 is unpatentable over the combination of Kitamura and Harbers as discussed above. Kitamura further discloses the material of the light guide plate to comprise transparent acrylic resin (Kitamura, ¶ [0021]).

35. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use polymethylmethacrylate (PMMA) or polycarbonate to form the light guide plate of the device as taught by the combination of Kitamura and Harbers, since it has been held to be within the general skill of a worker in the art to

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select a known material on the basis of its suitability for the intended use as a matter of design choice. *In re Leshin*, 125 USPQ 146.

36. Regarding claim 49, claim 27 is unpatentable over the combination of Kitamura and Harbers as discussed above. Both Kitamura (Kitamura, ¶ [0003]) and Harbers (Harbers, ¶ [0020]) further disclose a liquid crystal display device comprising an LCD panel positioned relative to the light emitting surface of the backlight device, receiving light emitted from the light-emitting surface of the backlight device.

37. Regarding claim 50, claim 49 is unpatentable over the combination of Kitamura and Harbers as discussed above.

38. Kitamura fails to expressly disclose a diffusion sheet.

39. However, Harbers discloses a diffusion sheet (28) disposed between the LCD panel and a second surface of the backlight (Harbers, Fig. 2; ¶ [0018]).

40. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include a diffusion sheet as taught by Harbers in the backlight device as taught by the combination of Kitamura and Harbers, in order to increase the efficiency of the backlight, (Harbers, ¶ [0018]).

41. Regarding claims 51 and 52, Kitamura discloses a backlight device comprising:

- a. A point light source (LED light source 5);

b. a light guide plate (8) comprising a first surface facing the array of point light sources and a second surface emitting light passing through the light guide plate, wherein the first surface comprises a protrusion comprising a convex structure (light guide block 11), aligned with the point source and having a recess (through hole 12) directly facing the point light source (Kitamura, Figs. 2,3).

42. Kitamura further expressly discloses that a plurality of LED components may be used (Kitamura, ¶ [0027]).

43. Kitamura fails to expressly disclose a two-dimensional array of point light sources and convex structures.

44. However, Harbers discloses a backlight guide comprising a two dimensional array of LEDs (24) supported on a back plate (Harbers, Figs. 4, 5). Since Kitamura teaches each protrusion comprising a convex structure to correspond to each LED, the combination of Kitamura and Harbers would also include a two-dimensional array of convex structures.

45. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use a two-dimensional array of LEDs, as taught by Harbers, in the device of Kitamura, in order to, for example, increase the contrast of a device using the backlight by driving the LEDs in groups (Harbers, ¶ [0030-0034]).

46. **Claim 38** is rejected over Kitamura in view Harbers, as applied to claim 27 above, and further in view of Koike et al. (Koike), US Pat. No. 5,528,709.

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47. Claim 27 is unpatentable over the combination of Kitamura and Harbers as discussed above.

48. Kitamura fails to disclose the recess to be an arc-shaped recess.

49. However, Koike discloses a backlight for a liquid crystal display device, including an arc-shaped recess formed concave to the LED point light source (Koike, Fig. 5B).

50. Koike is analogous art because it solves the same problem of achieving uniform brightness in a backlight for a liquid crystal display device.

51. Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to form the recess as taught by the combination of Kitamura and Harbers in an arc-shaped manner as taught by Koike, for example, when the LED point light source is weak in directivity of emitted light (Koike, col. 8, line 9-19).

52. **Claims 46 and 47** are rejected under 35 U.S.C. 103(a) as being unpatentable over Kitamura in view Harbers, as applied to claim 27 above, and further in view of Nishio et al. (Nishio, previously cited), US Pat. No. 5,598,280 A.

53. Claim 27 is unpatentable over the combination of Kitamura and Harbers as discussed above.

54. Kitamura fails to teach the second surface of the light guide plate to comprise a light guide pattern.

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55. However, Nishio discloses a backlight device comprising a light guide plate, wherein a second surface of the light guide plate comprises a jagged light guide pattern or uneven surface (Nishio, Figs. 6-8; col. 6, lines 12-46).

56. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have the second surface of the light guide plate of a backlight device, such as the backlight device as taught by the combination of Kitamura and Harbers, comprise a jagged light guide pattern, as taught by Nishio, in order to obtain a uniform angular distribution of the light (col. 6, lines 47-53).

Conclusion

57. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Matthew P. Lawson whose telephone number is 571-272-9795. The examiner can normally be reached on Monday through Thursday from 8:00am to 6:00pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David C. Nelms, can be reached at 571-272-1787. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should

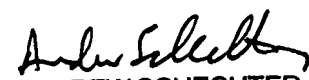
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Matthew P. Lawson,
Examiner

MPL


ANDREW SCHECHTER
PRIMARY EXAMINER